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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,190	05/17/2006	Hans Braun	8009-88059	8141

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EXAMINER	
COX, ALEXIS K	

ART UNIT	PAPER NUMBER
3744	

MAIL DATE	DELIVERY MODE
12/10/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/568,190	BRAUN ET AL.	
	Examiner	Art Unit	
	ALEXIS K. COX	3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 February 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *2/13/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: On page 5 of the specification, fig. 4 is not listed with the other figures.

Appropriate correction is required.

Claim Objections

2. Claims 1-8 are objected to because of the following informalities: In claim 1, the limitation “the valves” on line 3 should be changed to “a valve," “the operating units” on line 6 should be changed to “an operating unit”, “closed-loop” on line 10 should be changed to “the closed-loop”, and the limitation "the respectively" on line 13 should be change to "the respective" for increased clarity of the claim. Additionally, removal of the words “in particular” on lines 1-2 would clearly indicate that the cooling circuit is actually required for the method claimed. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-3, 6, and 8 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Corriveau (US Patent No. 6,178,928) in view of Goubeaux et al (US Patent No. 5,022,234).

Regarding claim 1, Corriveau discloses an internal combustion engine total cooling control system comprising an engine (14, see column 2 line 65), a temperature sensor (54, see column 4 line 14) with associated valves (26, see column 3 line 12) which with the controller (36, see column 3 lines 36-38) constitute a thermostat, a small coolant circuit without a radiator (14, 12, 20, 26, 24, 22, 28, see figure 1) and a large

coolant circuit with a radiator (14, 12, 20, 26, 24, 16, 22, 28, see figure 1) which can be separated from one another or mixed with one another in a temperature controlled manner, or connected to one another in a mixing mode with a mixing ratio with closed-loop control of the temperature, and the operating units of the valves in the thermostat are triggered by a control means (36, see column 3 lines 36-38), and one of a plurality of possible desired coolant temperatures is set by opening and closing the valves in the thermostat (see column 6 lines 57-61). It is noted that the coolant temperature setting is not characterized in that the closed-loop control to each prespecified desired coolant temperature involves a first and second closed-loop control phase with the first closed-loop control phase in the form of basic adaptation with stored control parameters setting the currently prespecified desired coolant temperature as quickly as possible, and, after the respectively current desired coolant temperature is reaches, the second closed-loop control phase in the form of fine adaptation with variable control parameters keeping the currently prespecified desired coolant temperature as constant as possible. Goubeaux et al discloses a control method for a variable displacement air conditioning system compressor comprising multi-phased closed loop control (see column 3 lines 24-33 and figure 1; see page 13 of Control Systems Engineering, fourth edition, by Norman S. Nise, for the definition of closed loop) with a first basic adaptation (COARSE CONTROL with stored control parameters (pressure error changeover value, see column 4, lines 21-24) setting the currently prespecified desired coolant parameter as quickly as possible (see column 4 lines 21-25) and, after the respective current desired coolant parameter is reached, the second closed-loop control phase (FINE CONTROL) in the

form of fine adaptation with variable control parameters keeping the current prespecified desired coolant parameter as constant as possible (see column 4 lines 27-42 and column 2 lines 34-43). Further, although the system of Goubeaux et al uses pressure as the controlled parameter, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the algorithm of Goubeaux et al in the system of Corriveau in order to obtain rapid temperature control of the engine coolant fluid without sacrificing efficiency.

Regarding claims 2 and 3, it is noted that Corriveau does not disclose the method required. However, the method of Goubeaux et al discloses the new parameter to be set by fine adaptation when the currently prespecified desired coolant parameter is changed (see column 6 lines 52-53 and 66-67), and the basic adaptation setting are improved by the corrected fine adaptation settings (see column 2 lines 48-51). Further, although the system of Goubeaux et al uses pressure as the controlled parameter, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the algorithm of Goubeaux et al in the system of Corriveau in order to obtain rapid temperature control of the engine coolant fluid without sacrificing efficiency.

Regarding claim 6, it is noted that Corriveau does not disclose the method required. However, the current desired coolant temperature is selected from at least three different prespecified desired coolant temperatures as a function of the load (see column 3 lines 42-51).

Regarding claim 8, it is noted that Corriveau does not disclose the method required. However, it is explicitly stated in Corriveau that to a first order of magnitude

approximation, the mass flow rate of the coolant through the radiator controls the total amount of heat which can be rejected (see column 5 lines 57-62), which will determine the equilibrium system temperature. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a proportional control of mass flow rate through the radiator relative to temperature of the engine coolant as a simple and effective backup in the event of the failure of the more complicated system previously disclosed, especially as the simple substitution of an electronically controllable thermostatic valve for the one disclosed would have the desired effect of maintaining some engine temperature control in the event of failure of the controller.

7. Claims 4, 5, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Corriveau (US Patent No. 6,178,928) in view of Goubeaux et al (US Patent No. 5,022,234), further in view of Dao (US Patent No. 6,304,803).

Regarding claims 4, 5, and 7, it is noted that Corriveau in view of Goubeaux et al does not explicitly state the basic coolant temperature setting to be matched to the ambient temperature when the motor vehicle is started. Dao discloses an ambient temperature sensor and display (108, 112, see column 4 lines 46 and 60-64), and the simple substitution of the control panel of Dao for that of Corriveau in view of Goubeaux and the addition of an external temperature sensor to provide information to those inside the vehicle would have been obvious to one of ordinary skill in the art at the time of the invention. Additionally, when the motor vehicle was off for a given period of time, the coolant temperature would approach ambient, falling well outside the set control parameters from while the vehicle was running; also, ambient temperature will change

the rate of heat transfer from the radiator to the air. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the information from the ambient temperature sensor as the initial set point for the coolant temperature in the algorithm of Goubeaux when the vehicle is turned on after a minimum period of time in order to prevent overcorrection and waste, and additionally to continue to use the input of ambient temperature in all phases of the closed-loop control system.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Engelin et al (US Patent No. 6,843,210) discloses a thermostatic valve and method for controlling a coolant circuit including a condenser or radiator bypass. Vaudry et al (US Patent Application Publication No. 2002/0121554) discloses a cooling unit for motor vehicles with radiator bypass. Marshall (US Patent No. 1,003,283) discloses a multiple feed system which can bypass any of several heat exchangers. Karl (US Patent Application Publication No. 2001/0003311) discloses a vehicle air conditioning unit with condenser bypass. Stensrud et al (US Patent Application Publication No. 2003/0126874) discloses an ice making apparatus with condenser bypass. Wightman (US Patent Application No. 2003/0140644) discloses a vapor compression system including a condenser bypass. McGrath (US Patent no. 2,252,300) discloses a refrigeration system with condenser bypass and three-way mixing valve for temperature control. Gannaway discloses a vehicular refrigeration system with condenser bypass for capacity modulation. Hafner (US Patent No. 6,098,473) discloses

a precision temperature test chamber with multiple-stage closed-loop temperature control. And Muller (US Patent Application No. 2007/0144464) discloses a method and cooling system for cooling an internal combustion engine with adaptive control.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEXIS K. COX whose telephone number is (571)270-5530. The examiner can normally be reached on Monday through Thursday 8:00a.m. to 5:30p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler or Frantz Jules can be reached on 571-272-4834 or 571-272-6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/AKC/

/Frantz F. Jules/
Supervisory Patent Examiner, Art Unit 3744